DEPARTMENT OF AGRICULTURE DEVELOPMENT
& FARMERS' WELFARE, GOVERNMENT OF KERALA

FARM INFORMATION BUREAU

KERALA KARSHAKAN

E-JOURNAL

THE FIRST ENGLISH FARM JOURNAL FROM THE HOUSE OF KERALA KARSHAKAN

SEPTEMBER 2025
VOLUME 13 ISSUE 04

Uncovering Coconut's Power, Inspiring Global Action

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World Coconut Day

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SEPTEMBER 2025 VOLUME 13 ISSUE 04

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THE FIRST ENGLISH FARM JOURNAL FROM THE HOUSE OF KERALA KARSHAKAN

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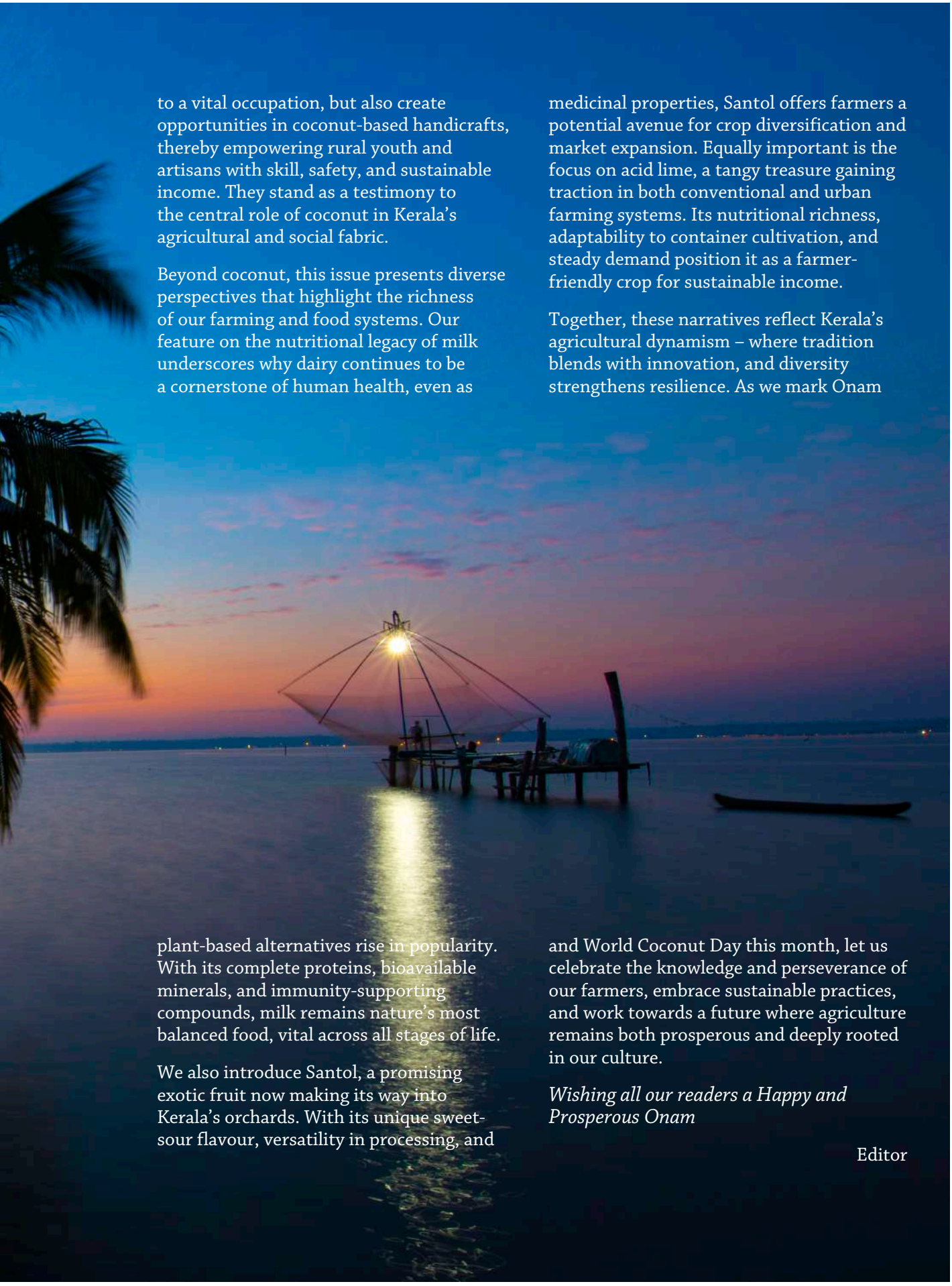
World Coconut Day and Beyond **Innovations Shaping Agriculture**

September 2 is observed as World Coconut Day, and for Kerala, this date carries special significance. The coconut palm – our Kalpavriksha – is more than just a crop; it is a symbol of sustenance, culture, and livelihood for countless rural households. This year, the occasion becomes even more meaningful as the Coconut Development Board (CDB) introduces innovative initiatives such as Cocomitra and Kera Kaushal Kendra. These programmes not only professionalize coconut climbing and restore dignity



to a vital occupation, but also create opportunities in coconut-based handicrafts, thereby empowering rural youth and artisans with skill, safety, and sustainable income. They stand as a testimony to the central role of coconut in Kerala's agricultural and social fabric.

Beyond coconut, this issue presents diverse perspectives that highlight the richness of our farming and food systems. Our feature on the nutritional legacy of milk underscores why dairy continues to be a cornerstone of human health, even as plant-based alternatives rise in popularity. With its complete proteins, bioavailable minerals, and immunity-supporting compounds, milk remains nature's most balanced food, vital across all stages of life.

We also introduce Santol, a promising exotic fruit now making its way into Kerala's orchards. With its unique sweet-sour flavour, versatility in processing, and medicinal properties, Santol offers farmers a potential avenue for crop diversification and market expansion. Equally important is the focus on acid lime, a tangy treasure gaining traction in both conventional and urban farming systems. Its nutritional richness, adaptability to container cultivation, and steady demand position it as a farmer-friendly crop for sustainable income.

Together, these narratives reflect Kerala's agricultural dynamism – where tradition blends with innovation, and diversity strengthens resilience. As we mark Onam and World Coconut Day this month, let us celebrate the knowledge and perseverance of our farmers, embrace sustainable practices, and work towards a future where agriculture remains both prosperous and deeply rooted in our culture.

Wishing all our readers a Happy and Prosperous Onam

Editor

C D B Revamps Field Oriented Schemes for Greater Support and Benefits

Dr. B. HANUMANTHE GOWDA & JAYANATH R
Chief Coconut Development Officer & Deputy Director, CDB, Kochi

Coconut, aptly known as the 'Kalpavriksha', is the lifeline of rural livelihoods and coastal economies across India. In recent years, the sector has been confronted with mounting challenges, including pest and disease outbreaks driven by climatic variations, labour shortages, and sharp price fluctuations. Acknowledging the need for focused interventions, the Coconut Development Board (CDB) has undertaken a comprehensive revision of cost norms across its flagship schemes. These updated norms are designed to improve the viability of coconut cultivation, encourage the adoption of scientific farming practices, and foster inclusive, sustainable sectoral growth. By offering enhanced financial assistance,

Pradesh, Maharashtra, Odisha, Chhattisgarh, Bihar, West Bengal, Assam, and Tripura. These farms serve as centres for showcasing scientific coconut cultivation and producing quality planting material.

To expand this initiative, the Board proposes to set up new DSP Farms in additional states, on land provided free of cost or on long lease by State Governments, with a size ranging from 20 to 40 hectares. Each new farm is allocated ₹30 lakh for the initial two years for development.

From the third year onwards, till the farm reaches yield stability, maintenance support of ₹1 lakh per hectare per year is provided. For farms of 20 ha and 40 ha, this amounts to ₹20 lakh and ₹40 lakh respectively. Once stabilized, the farms are expected to become self-sustaining through revenue generated from planting material and farm produce.

Support for Quality Planting Material in Public Sector Nurseries

The scheme aims for enhancing the production and availability of quality coconut seedlings by providing financial assistance to public sector nurseries, covering 50% of the seedling production cost @ ₹20 per seedling. The remaining cost is to be met by the implementing agency.

Eligible nurseries include those under State Governments, public sector units, State Agricultural Universities (SAUs), Krishi Vigyan Kendras (KVKs), and other government institutions. The scheme supports production of quality seedlings of all released varieties and hybrids, using existing infrastructure. Assistance is limited to input costs such as seednuts, transportation, land preparation, sowing, maintenance, and uprooting.

The scheme aims for enhancing the production and availability of quality coconut seedlings by providing financial assistance to public sector nurseries, covering 50% of the seedling production cost @ ₹20 per seedling.

strengthening capacity building, and promoting area expansion, the Board is working towards a more productive, competitive, and climate-resilient coconut economy.

Production of Quality Planting Material – DSP Farms

The Coconut Development Board has established 11 Demonstration-cum-Seed Production (DSP) Farms across various states including Kerala, Karnataka, Tamil Nadu, Andhra

Establishment of Nucleus Coconut Seed Gardens

The objective is to establish nucleus coconut seed gardens of selected varieties in both public and private sectors to meet the growing demand for quality coconut seedlings of released varieties, including hybrids. The scheme provides 50% financial assistance on project basis @ ₹3.60 lakh per hectare, out of a total cost of ₹7.20 lakh/ha, disbursed in three equal annual installments: ₹1.80 lakh (50%), ₹0.90 lakh (25%), and ₹0.90 lakh (25%). The minimum area required is 2 hectares (relaxed to 1 hectare in non-traditional and North Eastern regions), with assistance available for a maximum of 4 hectares per unit.

Eligible beneficiaries include individuals, cooperative societies, NGOs, KVKs, ICAR institutes, SAUs, SHUs, FPOs, and other government or quasi-government organizations with suitable land and resources to establish seed gardens.

Establishment of Small Coconut Nurseries

The scheme is implemented on project basis to ensure the production of quality coconut seedlings by providing financial assistance for the establishment of coconut nurseries in private/ public sector.

The scheme offers assistance up to ₹90 per seedling, covering 100% of the cost for public sector and 50% for private sector nurseries. The maximum production capacity is 25,000 certified seedlings in One acre, with a minimum of 6,250 seedlings per year in 0.10 ha. In non-traditional areas, the minimum is relaxed to nurseries with production capacity of 3,125 seedlings.

Assistance is released in two equal installments. The first installment (₹45 for public, ₹22.50 for private) is given after sowing the seednuts, and the second installment is released after certification of seedlings by a CDB-constituted committee, based on the number of quality seedlings produced (limited to 62.5% of seednuts sown). Eligible beneficiaries include public sector agencies, cooperatives, FPOs, NGOs, and individual growers involved in quality seedling production.

Accreditation and Rating of Coconut Nurseries

The main objective of accrediting coconut nurseries is to facilitate, promote and monitor the production and trade of quality planting materials in both the public and private sectors thereby ensuring the availability of genuine and high-quality planting material based on their infrastructure, production system, management practices, and quality standards.

Public and private nurseries, including individuals and

institutions engaged in coconut seedling production with a minimum of three year experience in nurseries are eligible to apply for accreditation by submitting the prescribed application to the Board's headquarters in Kochi, Kerala.

Financial assistance of up to ₹1.50 lakh is provided for nurseries producing a minimum of 20,000 seedlings annually, with 100% subsidy for public sector nurseries and similar support for private sector applicants subject to assessment for accreditation and rating.

The Assessment Committee evaluates applications through document review and on-site verification, and submits a report with recommendations. Accredited nurseries must sign a Memorandum of Understanding (MoU) with CDB and are granted recognition for two years, after which renewal is required.

Expansion of Area under Coconut Cultivation

The scheme is for providing assistance for planting coconut seedlings or establishing a coconut garden in suitable areas for expanding the area under coconut in traditional states / non-traditional states and also for stabilizing existing area in traditional states so as to increase the future production potential.

Farmers can avail assistance of ₹56,000 per hectare, which is 35% of the estimated cost norm of ₹1.60 lakh/ha, disbursed in two equal annual installments. Support is available for planting of 10 seedlings in a minimum area of 0.08 ha (20 cents) and up to a maximum of 2 ha per beneficiary. In non-traditional coconut-growing states, the minimum eligible area is 0.05 ha, with at least 5 seedlings.

Applicants must use quality seedlings sourced from CDB's DSP farms, accredited nurseries, government nurseries, or own sources with proper certification from the concerned State Agri./ Horti. Department confirming adherence to the recommended package of practices.

Planting density is calculated at an average of 160 seedlings per hectare. The programme is implemented directly by the Board through the Department of Agriculture/ Horticulture of various States/ UTs in traditional coconut growing states. In North Eastern states and other non traditional states implementation is through the Department of Agriculture/ Horticulture/ ICAR/ KVKs/ SAUs/ SHUs.

Duly filled application in prescribed format along with geo tagged photos and other required documents need to be submitted to the respective CDB offices through State Horticulture/ Agriculture Department for availing assistance under this scheme. Beneficiaries who avail assistance in the first year are encouraged to apply for the second installment in the following financial year.

Comprehensive Programmes for Sustainable Productivity Improvement in Existing Coconut Holdings

Productivity Improvement through Coconut-Based Cropping Systems - PICCS

This scheme aims to enhance

The scheme is implemented on project basis to ensure the production of quality coconut seedlings by providing financial assistance for the establishment of coconut nurseries in private/public sector.

the productivity and income of coconut farmers through an integrated farming approach, with a focus on promoting coconut-based cropping systems and sustainable agricultural practices.

Implemented on a cluster basis, the scheme covers areas with 25 to 200 hectares of coconut cultivation, with at least 80% coconut coverage. In nontraditional coconut growing states and North Eastern States, minimum cluster area required for implementation of scheme is relaxed to 15 hectares. The programme is implemented through State Agriculture/ Horticulture Departments or directly by the Coconut Development Board (CDB).

Eligible Coconut Farmers' Clusters, FPOs or farmer groups can receive 100% financial assistance up to ₹42,000 per hectare, limited to 2 hectares per beneficiary, in two equal annual installments. All eligible farmers in the selected cluster area should be encouraged to participate in the programme. The assistance covers critical inputs, such as intercrop planting materials, green manure seeds, and plant protection chemicals. However, labour, infrastructure, and rental services are not supported under the scheme.

A baseline survey is conducted to formulate projects based on the existing farming conditions. To qualify, each farmer must have a minimum of 10 yielding coconut palms aged 5 years or more within the cluster.

The goal is to implement visible, replicable models of productivity improvement through scientifically recommended cropping systems, ensuring maximum impact at the cluster level. The scheme also envisages for post assesment after completion of the implementation.

Replanting and Rejuvenation of Coconut Gardens

The main objective of the scheme is to enhance the production and productivity of coconut by removal of disease advanced, unproductive, old and senile palms, replanting with quality seedlings and rejuvenating the remaining palms through an integrated package of practices. The scheme is implemented on project basis based on state specific problems. It is implemented on a cluster basis, either by the State Agriculture/ Horticulture Departments or directly by the Coconut Development Board.

The scheme has three components, with a total financial assistance limit of ₹54,000 per hectare over two years:

Cutting and Removal of Senile/Diseased Palms

Subsidy @ Rs.1000 per palm, subject to a maximum of Rs.32000/ha (32 palms per hectare) is provided during the first year after cutting and removal of old, senile, unproductive and disease advanced palms. The cutting and removal of disease advanced, old and senile palms shall be undertaken on the basis of the initial base line survey to be taken up in individual holdings through a prescribed proforma. It is mandatory to cut and remove the disease advanced, old and senile palms identified and marked during the base line survey, over and above the

ceiling of assistance by incurring expenditure of their own.

Rejuvenation of Existing Palms

Subsidy @25% of the total cost of rejuvenation (Rs 70,000); ie, Rs 17500/- per ha is provided in two annual installments of Rs.8750/- each. The following integrated management practices as per approved package of practice of concerned state is essential for rejuvenation of the remaining palms viz; balanced nutrition through soil test based fertilizer application, Irrigation and drainage, Soil and moisture conservation, Growing of cover crops and other green manure crops, Application of organic manure including enriched organics, Intercultural operation including basin management and weed control, Need based plant protection measures preferably with botanicals and bioagents., Regulation of shade and maintaining optimum palm population and Promotion of inter cropping/mixed farming.

Implemented on a cluster basis, the scheme covers areas with 25 to 200 hectares of coconut cultivation, with at least 80% coconut coverage.

The maximum area eligible under this component is One hectare per beneficiary.

Replanting

A subsidy @ 50% cost subject to a maximum of Rs 4,500/- ha (Rs.45/- per seedling) is extended. Cutting and removal of disease advanced, old, and senile palms shall be followed by a systematic replanting programme to maintain optimum plant density. The applicant should use only quality coconut seedlings for replanting. The seedlings should be procured preferably from nurseries of State Department of Agriculture/ Horticulture; State Agricultural/ Horticulture Universities; CDB or ICAR institutions or nurseries accredited by CDB. While replanting the palm population should not exceed the recommended planting density of the concerned state.

The scheme encourages a systematic, scientific approach to rejuvenate declining gardens and restore productivity, contributing to long-term sustainability and income enhancement for coconut growers.

Conclusion

The revised field-oriented schemes, along with several other initiatives introduced by the Coconut Development Board with updated cost norms, play a pivotal role in empowering coconut farmers, fostering greater investment, and ensuring sustainability in the sector. These revised cost norms will accelerate the adoption of advanced technologies, rejuvenate ageing plantations, and strengthen value chains. As India works to uphold its position as a global leader in coconut production, these progressive measures will be key to building a prosperous and climate-resilient future for coconut farming communities.■

Uncovering Coconut's Power, Inspiring Global Action

World Coconut Day 2025

Dr. HANUMANTHE GOWDA
Chief Coconut Development Officer, Coconut Development Board

World Coconut Day, observed every year on September 2nd to commemorate the establishment of the International Coconut Community (ICC), formerly known as the Asian Coconut Community (ACC) in 1969 and Asian Pacific Coconut Community (APCC) in 1975 under the aegis of the United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP).

It is more than a commemoration of a remarkable crop—it is a reaffirmation of our shared responsibility to safeguard the future of coconut farming and its industry. This year's theme, "Uncovering Coconut's Power, Inspiring Global Action," conveys crucial role of coconuts and their economic & social importance globally. Around the world, the demand for coconut-based products continues to grow, driven by the rising preference for healthy foods, sustainable materials, and natural ingredients. At the same time, coconut-producing countries are confronting persistent challenges—declining yields, an aging tree population, and insufficient replanting efforts—that threaten to undermine this potential. The theme calls upon all stakeholders to bridge the widening gap between market opportunity and raw material supply through innovation, farm revitalization, and stronger partnerships across the value chain.

India holds a position of pride as one of the largest producers of coconuts in the world. The crop is deeply woven into the rural economy, culture, and livelihoods of millions of farming households. For us, this theme

India holds a position of pride as one of the largest producers of coconuts in the world. The crop is deeply woven into the rural economy, culture, and livelihoods of millions of farming households.

is not merely a slogan—it is a practical roadmap. We must uncover the full power of the coconut, not only in terms of its nutritional, social and economic value but also in its contribution to climate resilience, environmental sustainability, and rural development. The Coconut Development Board (CDB), under the Ministry of Agriculture and Farmers Welfare, Government of India, is committed to translating this vision into reality through an integrated approach that spans production, processing, value addition, marketing and export.

Over the years, the Board has spearheaded programmes to enhance productivity, improve quality, strengthen farmer organizations, and develop market linkages. Recognizing the evolving needs of the sector, the Board has recently revised and streamlined its schemes to

make it more comprehensive, accessible, and impactful. These revised guidelines are designed to provide targeted support to farmers, entrepreneurs, and other stakeholders, ensuring that every link in the coconut value chain is strengthened.

One of the key focus areas of the revised schemes is the replanting and rejuvenation (R & R) of senile and unproductive palms. With a significant portion of our coconut stands being more than sixty years old, it is essential to replace low-yielding trees with high-yielding, disease-resistant varieties. The CDB is providing assistance for seedling production, seed garden establishment, and distribution of quality planting material. Demonstration-cum-seed production farms managed by the Board are playing a pivotal role in ensuring the supply of elite seedlings to farmers. Alongside replanting, the Board is promoting integrated farming models where coconut is intercropped with compatible crops, enhancing both productivity and farm income.

The Area expansion scheme of board plays a significant role in bringing new regions under coconut cultivation and promoting coconut as an economically viable crop in all areas suited for the crop, with a ten-fold increase in the financial assistance as per the newly revised cost norms.

Equally important focus is on plant protection and disease management. The Board's schemes provide support for integrated pest management practices, organic farming adoption, and training programmes for farmers in scientific cultivation techniques.

Post-harvest processing and value addition form another cornerstone of the revised schemes. India has immense untapped potential in converting raw coconuts into high-value products such as virgin coconut oil, coconut water, coconut chips, coconut sugar, activated carbon, and coir-based goods.

Marketing and export promotion remain integral to the Board's mission. With global demand for coconut-based products rising, India has the opportunity to strengthen its presence in international markets.

The CDB is offering assistance for establishing processing units, common facility centres, and farmer-producer organizations dedicated to coconut-based enterprises. The aim is to ensure that farmers capture a greater share of the value created from their produce, rather than being confined to selling raw nuts.

Skill development and livelihood generation have also been prioritized under the revised programmes. The Board's flagship initiatives—such as the Cocomitra – Coconut Climbers Task Force for training and deploying professional tree climbers, and the Kera Kaushal Kendra for promoting coconut-based handicrafts—are empowering rural youth and women with sustainable income opportunities. These initiatives are not only addressing the shortage of skilled labour for harvesting but also creating niche markets for value-added coconut products.

Marketing and export promotion remain integral to the Board's mission. With global demand for coconut-based products rising, India has the opportunity to strengthen its presence in international markets. The CDB's export promotion activities include participation in trade fairs, buyer-seller meets, and branding campaigns to position Indian coconut products as premium, sustainable, and safe. By connecting farmers and processors with global buyers, the Board is helping to ensure that market growth translates into tangible benefits for the primary producers.

As we celebrate World Coconut Day 2025, we are reminded that the coconut is more than a crop—it is a lifeline for millions, a symbol of resilience, and a resource for sustainable development. The challenges before us are real, but so are the opportunities. By uncovering the full potential of the coconut and inspiring with coordinated action, we can ensure that this sector thrives for generations to come. The revised schemes of the Coconut Development Board provide the tools, resources, and pathways to achieve this vision. It is now up to all stakeholders—farmers, entrepreneurs, researchers, policymakers, and consumers—to work together in collaboration to harness the power of the coconut.

This issue of Kerala Karshakan brings together detailed articles on the various schemes and programmes of the Board, offering insights into how these initiatives are being implemented in the field. From productivity enhancement to value addition, from skill development to export promotion, the schemes reflect the Board's commitment to the integrated development of coconut farming and industry in India.

On this World Coconut Day, let us reaffirm our collective resolve to nurture our coconut heritage, unlock its full potential, and take decisive steps to ensure that the coconut remains a source of health, prosperity, and sustainability for the world. Together, we can bridge the gap between market demand and raw material supply, revitalize our farms, and strengthen the value chain—transforming challenges into opportunities and aspirations into achievements.■

Coconut Exports
Window of opportunity & Growth

DEEPTHI NAIR S Director, Marketing
RENU P VISWAM Statistical Officer, CDB

The agricultural trade sector had always shown a positive growth, though their contribution is small compared to the manufacturing and engineering sectors in India. Agricultural export, apart from bringing in foreign exchange earnings, also contributes to rural employment, livelihood security, food security and social security. With the Government of India targeting an export value of USD 2 trillion by 2030 and USD 21 trillion by 2047, it is encouraging to see that coconut-based exports are aligning with this vision, contributing towards this goal in a small but effective and modest way. It is visible and evident from the upward trajectory in the coconut export figures reported during the year 2024-25.

Coconut Export Scenario and relevance of international trade

India's coconut product exports were valued at ₹4349.03 crore, translating to a trade volume worth USD 513 million. This marks a 25% increase over the previous year; an average growth per year of 12-14% is seen in last ten years. WE have come very far from where we started. The export figures were very meagre at Rs. 25.3 crores in 2001-02 concentrating on the traditional products like coconut, coconut oil, desiccated coconut etc. The export quantities have diversified to add an array products, both food and non-food which is beneficial both for the coconut industry and cultivation.

International trade supports and provides for a stronger economy and growth. This increase in export also indicates development of coconut sector/ industry. The coconut export basket which was predominantly traditional and limited has developed into a comprehensive basket with diversified value added products. Thus the product concentration has developed immensely to suit the consumer needs and demands for application oriented products using virgin coconut oil, coconut milk, coconut oil, coconut water etc. The market concentration has also increased with Indian coconut products making inroads into continents like Europe, the Americas and Australia. We have traversed a long way from the middle east markets, which were once the only export destination.

Impact of increased exports on coconut cultivation and industry

The prospects and potentials offered by the global markets have to be capitalized by strengthening our coconut cultivation and industry. The need is to promote the domestic processing industry to undertake production in an efficient manner in order to drive exports and thereby growth in the sector. The coconut product manufacturers and exporters have to be empowered in up skilling their technology with state of the art technology, increased awareness on quality standards and practices and adherence to the standards, increased exposure and experience of the global coconut industry through participation in trade fairs and buyer seller meets which will help in assessing the needs of the consumers in terms of product and quality and finally execution of orders in a time bound manner with quality products. This will entitle them in acquiring good remunerative prices and also increase the revenue of the country and competitiveness of the Indian manufactured products. Since the domestic prices of coconut and coconut products are always higher than the international prices, the exporters and coconut product manufacturers are working on a very narrow margin in export. The quality of the product should be able to help market penetration. The quality of Indian coconut products is also established through the jump in export values experienced during 2024-25 thus providing motivation to the coconut exporters to explore new horizons.

Need for ongoing innovations

The growing global preference for ready-to-eat and ready-to-cook food products due to busy schedules and fast life styles, along with an increasing appetite for diverse culinary experiences, has led to a noticeable shift in international trading patterns in the food sector. The COVID-19 pandemic acted as a significant catalyst in this transformation, bringing heightened consumer awareness about health, immunity, and natural foods. This shift steered global attention towards functional and nutraceutical products, notably coconut and its derivatives. The inherent health benefits of coconut—recognized for its antiviral, antibacterial, and immunity-boosting properties—gained widespread popularity during the pandemic. This emerging trend, combined with the Coconut Development Board's intensified promotional efforts emphasizing the health and wellness aspects of coconut, provided a significant boost to India's coconut exports. The call for sustained cultivation, increased demand for natural food with zero waste, increasing demand for vegan food, environment friendly production, health attributes etc are factors that are congenial for the coconut sector.

An overview of Export performance 2024-25

Analysis of the export performance is the focal point for future planning and execution of export promotion activities. A monthly snapshot of trade performance in the coconut sector is shown in Figure 1.

A quick glance at the data reveals a relatively stable export trend throughout the year, with only minor dips observed in the months of November and

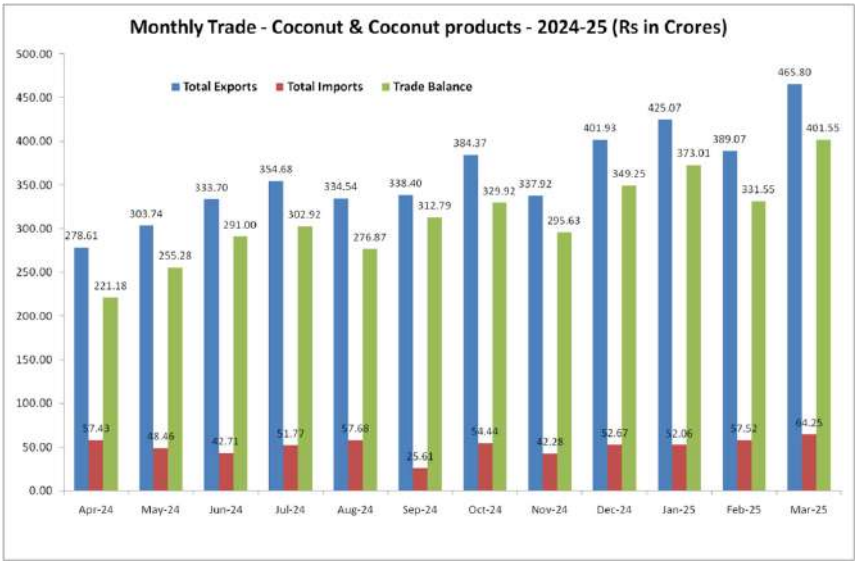


Figure 1

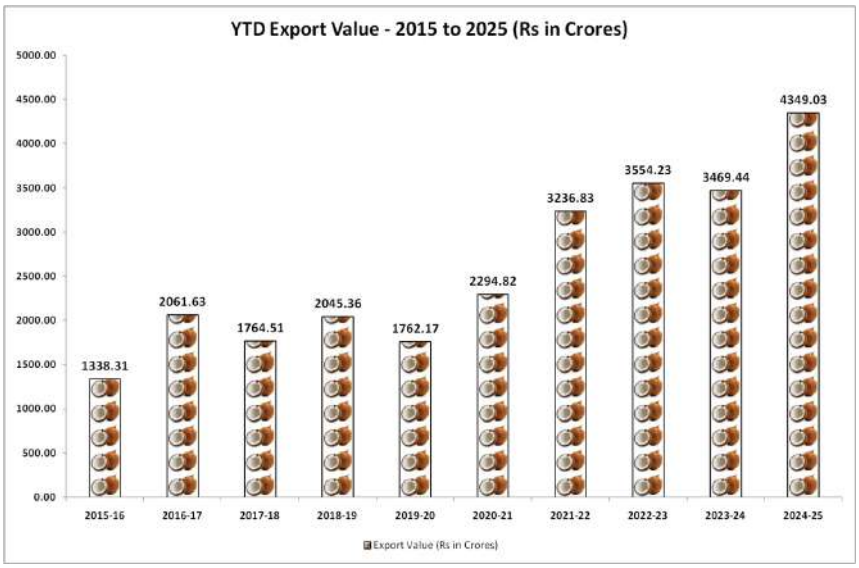


Figure 2

February. Notably, the export values during 2024–25 have consistently remained higher than those recorded in the corresponding months of 2023–24. On an average, India exported approximately 15,000 metric tons of activated carbon and 1,000 metric tons of coconut oil every month during the current financial year. The top three consistent export destinations throughout the year were the USA, UAE, and Sri Lanka with maximum value of monthly export transactions. The trade balance in the coconut sector remains positive, with exports significantly exceeding imports, reflecting the sector's strength in foreign markets. The balance of trade, a key component of a country's GDP is also thus contributing positively in the coconut sector.

A year-to-date graphical representation of export trends over the past ten years was undertaken which is represented in Figure 2.

While the period between 2015–16 and 2020–21 displayed some volatility mainly owing to the high domestic prices prevailing in 2017-18 and the pandemic

in subsequent year, the post-COVID era marks a clear and steady growth trajectory in the export of coconut products.

Among key trading partners, the UAE accounts for an average monthly trade value of USD 6.25 million, followed closely by the USA at approximately USD 6 million, indicating their importance as top markets for Indian coconut exports.

Coconut Export Sector Analysis

Over time, Indian coconut exporters have gained confidence and expanded into new markets, embracing advanced technologies and attracting a growing number of entrepreneurs to the sector. This entrepreneurial surge has led to the establishment of new industries and the adoption of diverse technologies, enhancing the production and processing capabilities within the coconut industry. A heightened awareness among exporters and manufacturers regarding the importance of maintaining quality standards, ensuring hygiene, and obtaining improved certifications has further bolstered the sector's credibility on the international stage. Participation in exhibitions, buyer-seller meets, and other promotional events has facilitated greater market exposure and networking opportunities. Technology Mission on Coconut (TMoC) scheme launched in 2001 for promoting product diversification has begun to yield positive results, supporting both the manufacturing and export domains effectively. Further the notification of Coconut Development Board as the Export Promotion Council for coconut products other than coir in April 2009 has enabled focused export promotion approach in the coconut sector yielding results. Additionally, the implementation of new Free Trade Agreements (FTAs) has significantly contributed to the sector's growth by providing enhanced market access and reducing trade barriers. Collectively, these factors have propelled India's coconut export industry to new heights, positioning it for sustained growth and global competitiveness.

The major coconut products exported and the trade partners is briefed in table below :

Activated Carbon: A review of international trade data on activated carbon reveals that India stands as the leading exporter by volume, consistently shipping over one lakh tonnes annually. The Philippines follows closely, maintaining a competitive edge in terms of export volume. However, a closer look at the trade patterns indicates a gradual yet steady increase in exports from Sri Lanka. More notably, Sri Lanka appears to command a better unit price, pointing towards a more remunerative export strategy and the potential value addition or brand positioning in their exports. This trend indicates a critical opportunity for India to strategically penetrate markets where Sri Lanka and Thailand are gaining traction. Key destination countries include China, the United States, the United Kingdom, Germany, Japan, and Estonia. Among these, the USA remains India's largest importer, while exports to Japan have seen a commendable increase over the years—signaling market expansion and product acceptance.

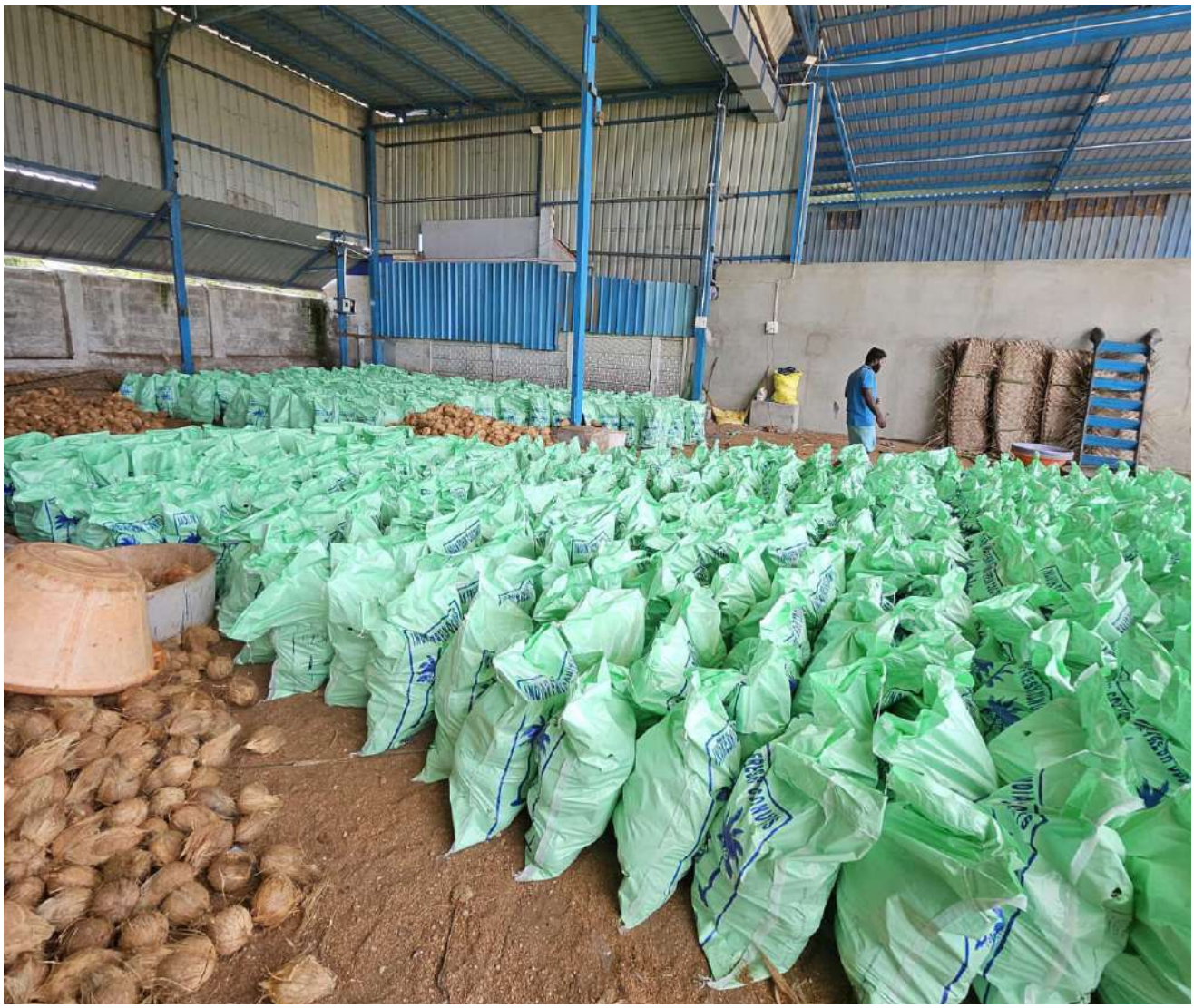
Coconut Oil: The global coconut oil trade has been largely dominated by the Philippines, which consistently exports substantial quantities at highly competitive prices. A review of international trade data over the past five years reveals that the average export price of coconut oil from the Philippines stands at approximately USD 1,159 per metric tonne, significantly lower than India's average export price of USD 2,658 per metric tonne. This stark price difference has positioned the Philippines as a major supplier in the global market, along with Indonesia, which also enjoys a pricing advantage over India and Sri Lanka Coconut oil.

Major Trade Partners (Export Value Rs in Crores)

Country	2020-21	2021-22	2022-23	2023-24	2024-25
U S A	365.27	480.66	535.49	651.23	604.12
UNITED ARAB EMIRATES	229.80	407.26	391.24	403.09	636.07
SRI LANKA	125.22	240.19	226.41	200.26	293.47
GERMANY	101.35	157.96	161.73	115.36	83.82
BELGIUM	52.31	70.00	87.77	115.39	145.37

Major products Traded (in last 5 years)

ACTIVATED CARBON
COCONUT (COPRA) REFINED OIL AND FRACTIONS
COCONUT FRESH
COPRA
COCONUT DESICCATED



During the same five-year period, the Philippines exported an impressive 52 lakh tonnes of coconut oil, followed by Indonesia with 32 lakh tonnes. In contrast, India and Sri Lanka together contributed just about one lakh tonnes, highlighting their limited share in the global coconut oil trade. Both India and Sri Lanka consume coconut oil domestically as an edible oil and the increased demand domestically may also be contributing to the higher prices for coconut oil. The data clearly points to the competitiveness of Southeast Asian countries in terms of both scale and pricing, making it challenging for Indian exporters to compete in bulk coconut oil markets without significant value addition or market segmentation strategies. Quality of product will definitely emerge as a decision maker in the global scenario and hence Indian exporters can invest in better quality of product and get certified to counter the stiff competition through low prices.

Desiccated coconut: Amidst this competitive scenario, Indian exporters found a small silver lining in the desiccated coconut segment. Notably, there was a measurable increase in the export volume of desiccated coconut from India in recent years. This surge appears to be a strategic response to supply shortages in the Sri Lankan market, allowing Indian exporters to capture market share and meet global demand more effectively. This trend not only reflects the agility of Indian exporters in identifying and responding to market gaps but also underscores the potential for expanding into high-value, niche coconut-based products.

Other products of considerable export include dried edible coconut which is used in middle-east and west Asian countries as a dry fruit, fresh coconut directly consumed by Indian Diaspora, shell and shell charcoal etc. Innovative products like coconut water and coconut milk are

exported in small quantities.

Challenges in export

Though India is the top producer of coconut, we face a number of challenges in the export market. The high domestic demand for coconut in the form of fresh coconut directly used for culinary purposes, tender coconut, coconut oil and various value added products of coconut leaves only a small proportion of the production for export purposes. This is a major challenge in export where once export orders are committed, they have to be fulfilled. Increasing the area and production of coconut is imperative to meet the demand in the export market. Also, the diversification to innovative products is going to continue with newer functional and convenience foods emerging from coconut. The health and beauty care segment is a prospective segment for coconut and its value added products.

The high domestic price of coconut and its products is another challenge which makes it difficult to compete with countries like the Philippines and Indonesia. Still, India is able to promote the export of coconut products and increase export volumes over the years, primarily based on the quality of the products. Increasing productivity and reducing expenses will help in reducing the per nut cos. Adding to this, integrated processing to enable utilisation of all the parts of coconut will help in realising increased returns giving space for negotiating the prices. Intercropping and mixed cropping will not only add revenues but increase sustainability of plantation, ensure optimum resource utilisation and increase the viability of the plantation.

In the case of activated carbon which is the top export product from India, one of the challenges expected is related to the adoption of sustainable and green technologies in the production of shell charcoal, a key raw material in the manufacturing of activated carbon. Addressing this concern, the Coconut Development Board (CDB) has taken a proactive role in streamlining efforts towards environmental compliance. CDB facilitated a meeting wherein various stakeholders were addressed on a single platform to familiarize them with approved cleaner technologies to promote adoption, thereby aligning the sector with Sustainable Development Goals (SDGs). This initiative shall not only improve the environmental footprint of the industry but also enhances the global image of Indian activated carbon exporters—making them a preferred choice in environmentally conscious markets.

Export Promotional activities

In addition to technological interventions, CDB has been instrumental in promoting Indian exporters on international platforms. By facilitating participation in major international trade fairs and exhibitions, the Board has helped exporters gain visibility, network with potential buyers, and explore emerging markets. These efforts have collectively contributed to strengthening India's export performance and setting the stage for higher value realization in global markets. The major events facilitated during 2024-25 include Thaifex Anuga Asia in Thailand, Food and Beverage, West Africa, ICC International Cocotech Conference and Exhibition, World Food Moscow, Sial Paris, Filtech Cologne, Germany, Aquatech Amsterdam etc. India-GCC Buyer Seller Meet on Food and Beverage was also facilitated in collaboration with Trade Promotion Council of India. The Board also facilitated participation of exporters in the India Africa Business Conclave to explore development of market access and trade linkages

To conclude, while India leads in activated carbon export volumes, the evolving trends call for strategic interventions in market diversification, price realization, and sustainable production. While India may face challenges in competing on price and volume in the coconut oil segment, opportunities lie in product diversification, targeting value-added segments such as desiccated coconut, virgin coconut oil, and other specialty products. Strategic interventions and consistent support helps Indian exporters enhance competitiveness and improve their footprint in the global coconut product market. It is evident that India's coconut exporters are progressing steadily, not only enhancing their individual growth but also contributing significantly to the nation's export ambitions. Their continued efforts and achievements are simultaneously strengthening the role and relevance of the Coconut Development Board (CDB), which has been instrumental in facilitating this progress. Government of India has also announced the Export Promotion Mission to promote exports and as an Export Promotion Council the Board will be intensifying its activities with concerted efforts for promoting the exports of coconut products other than coir, in the years to come. Together, Board, manufacturers, exporters will be able to create a distinct presence for Indian coconut products in global markets, marking a meaningful stride toward inclusive and sustainable export-led development. ■

CDB 's Schemes for Market Promotion

Boosting Opportunities for Coconut Farmers and Entrepreneurs

Coconut is one of the most versatile and valuable crops of India, playing a vital role in the livelihood of millions of farmers. Beyond its traditional uses, coconut has found its place in a wide range of value-added products that are in demand both in domestic and international markets. Recognising the immense potential of this sector, the Coconut Development Board (CDB) has been implementing comprehensive schemes aimed at market promotion, expansion of market access, improvement in product quality, and creation of new opportunities for farmers, processors, entrepreneurs, and exporters. These schemes, operating under the broad framework of Market Intelligence and Research, Product and Brand Promotion and Export Promotion Services, are designed to address both domestic and global market challenges while empowering stakeholders to compete effectively.

Activities for facilitating market development, increasing market access, expanding markets,

improving quality in accordance with market demand and promotion of market for coconut and its value-added products, leading to the development of the coconut sector in the country as mandated in the Coconut Development Board Act is being taken care of. . The major activities undertaken include market promotional initiatives for both the domestic and export markets, comprising of the following components and subcomponents as detailed below.

A. Domestic Market Promotion

A.1. Buyer Seller Meets – Domestic: This is a scheme to support coconut product manufacturers in market development of various value-added coconut products by creating a forum for interaction and negotiation with potential buyers, traders, and distributors to establish trade linkages. Such meets are also facilitated by the Board alongside exhibitions and trade fairs. Eligible entrepreneurs and exporters are supported with reimbursement of expenses for participation as per norms. Fifty percent of the participation fee limited to ₹15,000 per firm is also provided when BSMs are organized by other trade bodies.

A.2. Coconut Pavilions in Major National Level Trade Fairs with Participation of Entrepreneurs: This is a scheme for intensifying the market development and market promotional activities for coconut products wherein the Board facilitates entrepreneurs and exporters for participation in national-level trade fairs for showcasing their coconut products, either directly taking stall space or permitting eligible entrepreneurs to take stall space and participate. Assistance is extended as reimbursement of eligible expenses as per norms.

A.3. Manufacture of Quality Coconut Products Through Development of Skilled Labour: This is a scheme to develop a skilled task force for processing of coconut products in processing units, preferably recently commissioned units where commercial production has initiated. Assistance limited to ₹1.50 lakh is provided to units for conducting a one-month training programme for a batch of 10 trainees (unemployed youth) so as to equip them to meet the requirements of skilled manpower for the development of the coconut industry, followed by placement in suitable processing units. Assistance includes stipend and allowance for food and accommodation to trainees.

A.4. Promotion and Popularisation of Innovative Coconut Products, Tender Coconut Carts and Other Market Promotional Activities: Product

promotion is undertaken by the Board through distribution of varied coconut products in official meetings, showcasing in exhibitions and trade fairs, investors' meets, buyer–seller meets, etc.

A.5. Market Research, Survey and Market Studies: The Board undertakes studies on the prospects of coconut products including demand and supply of coconut oil, tender coconut marketing in various states, and other studies and surveys in areas of interest to the sector, on a need basis, in collaboration with other research institutes.

A.6. Infrastructure Support for Establishment of Procurement Centres by FPOs: This is a scheme to encourage and empower the FPOs and provide them support to initiate procurement centres for aggregation and marketing of coconut. Reimbursement of 50% of expenditure incurred, subject to a maximum of ₹3.00 lakhs, is provided for establishment of a procurement centre, i.e., towards construction of semi-permanent or permanent shed/godown space for temporary storage of produce with associated minimum equipment or office furniture.

A.7. Infrastructure Support for Establishment of Primary Processing Centres – for Ball Copra/Milling Copra/Minimal Processing of Tender Coconut by FPOs/Agricultural Cooperatives/ Entrepreneurs: This is a scheme to support FPOs, agricultural cooperatives, entrepreneurs, and individual coconut farmers to initiate primary processing centres for production of ball copra, milling copra, or minimally processed tender coconut, thereby helping the farmers to produce good quality produce. Reimbursement of 50% of the expenditure incurred, subject to a maximum of ₹3.00 lakh, is provided as subsidy for a ball copra unit (minimum capacity to process 6,000 mature nuts and maximum of 12,000 nuts), milling copra unit (minimum capacity 500 mature nuts/day), or minimally processed tender coconut unit (minimum capacity 80–100 nuts/hour).

A.8. Infrastructure Support for Setting Up of Sales Outlets or Kiosks for Value Added Coconut Products: This is a scheme to support establishment of coconut kiosks or sales outlets for selling all kinds of quality products made from coconut to manufacturers of branded value-added coconut products and Farmer Producer Organisations (FPOs) registered with CDB, on a project basis. In non-traditional states, registered legal entities such as Farmer Producer Companies, cooperatives, and marketing federations having experience in marketing are also eligible. Reimbursement

of 50% of the cost incurred on infrastructure, purchase of furniture, cupboards, racks, signage, refrigerator, electrical installation, etc., limited to a maximum of ₹3.00 lakhs, is provided as subsidy.

B. Export Promotion Council

B.1. Award for Export Excellence: This is a scheme to recognize the exporters for their outstanding performance in various fields connected with the coconut industry and to motivate them to intensify their efforts in coconut export. All exporters who are registered with CDB will be considered for the award and the award scheme has different categories to ensure representation of exporters dealing with all kinds of coconut products.

B.2. Seminars/Workshops for Potential Exporters and Entrepreneurs: Seminars and workshops are organized for entrepreneurs and exporters to discuss entrepreneurial prospects for value-added products of coconut, the formalities in export, updates in export guidelines, quality certifications in export, etc.

B.3. Setting Up of Coconut Pavilions in Major International Fairs: This is a scheme to support exporters to develop market for their coconut products globally by creating opportunities for participating in international events where there is potential for market development and market promotion of their specific product. Assistance is extended as reimbursement of eligible expenses as per norms.

B.4. Buyer Seller Meet – International: This is a scheme to help exporters in market development of various value-added coconut products by facilitating participation in buyer–seller meets in established as well as emerging new markets through trade promotion bodies or in association with the Embassy of India in respective countries. Eligible exporters are supported with reimbursement of expenses for participation as per norms.

C. Market Development

C.1. Assistance for Quality Certification: This is a scheme to promote quality certification and implementation of food safety management systems in harmonization with international standards in coconut processing units. Financial assistance is provided as reimbursement of 50% of the costs for certification and in-house quality control equipment, subject to a maximum of ₹5 lakhs for each certification, for a maximum of five different certifications, which should be undertaken through recognized agencies accredited by the National Accreditation Board for Certification Bodies or an internationally accredited certification body.

C.2. Brand Promotion: This is a scheme to support entrepreneurs in brand building for their products, but limited to those products or firms which conform to relevant national and international quality standards and with shelf life. Assistance is 100% of the cost up to ₹25 lakh for government agencies and 50% of the project cost limited to ₹15.00 lakh for others, extended as reimbursement of expenditure incurred for eligible brand building activities through digital marketing, mass media, printing publicity materials, and outdoor advertising.

D. Conferences

It is proposed to organize conferences on specified topics of relevance in the market such as health attributes, quality standards, technologies available, carbon credits, and other upcoming topics, with the objective of tabling the relevant updated information to the knowledge of the various stakeholders in the coconut sector. The International Coco Health Conference is being organized during 2025–26 in collaboration with the International Coconut Community (ICC) to update the stakeholders on scientific evidences on the health benefits of coconut and its various derivatives.

Other activities undertaken in marketing include facilitating farmer collectives, making recommendations for policy formulation related to product standards in accordance with market demand, export–import policy, and declaration of Minimum Support Price, apart from performing the responsibilities of the Export Promotion Council (EPC) such as issue of Registration-cum-Membership Certificates, facilitating export through support on trade databases, and raw material supply.

Through these schemes, the Coconut Development Board is ensuring that every stakeholder in the coconut value chain is equipped with the resources, knowledge, and opportunities to succeed. From skill development and infrastructure creation to quality certification, brand building, and global market access, these initiatives form a comprehensive support system for the sector. By connecting farmers, entrepreneurs, processors, and exporters to competitive markets, both within India and abroad, the Board is paving the way for a stronger, more resilient, and globally recognized Indian coconut industry. ■

Technology Mission on Coconut

A Strategic Initiative for Sustainable Development and Value Addition

DEEPTHI R
Development Officer
Coconut Development Board

India is one of the largest producers of coconut, with the crop playing a pivotal role in the livelihoods of millions of farmers and workers engaged in cultivation, processing, and trade. Despite its potential, the coconut sector has historically faced constraints such as pest infestations, limited value addition, poor infrastructure, and weak market linkages. Recognizing these challenges, the Technology Mission on Coconut (TMoC) was sanctioned in 2001–02 as a time-bound, project-based intervention to support technological innovation, improve productivity, and enhance the value chain of coconut and its by-products.

The Technology Mission on Coconut (TMoC), launched during the financial year 2001–2002, was conceptualized as a transformative initiative to address critical challenges in the coconut sector and enhance its economic potential. With a focus on research, value addition, integrated pest and disease management, the mission aims

to ensure the sustainability and competitiveness of the coconut industry in India. This article provides a comprehensive overview of the mission's goals, structure, strategic approaches, and focus areas, underscoring its role in promoting convergence among government programmes and enabling long-term socio-economic benefits for coconut-growing communities.

Objectives of the Mission

The mission was formulated with the following key objectives:

1. Development of Value-Added Products: Promote research and development (R&D) for new value-added coconut products and facilitate their commercial adoption by supporting promising entrepreneurs.

2. Pest and Disease Management: Provide assistance for controlling specific pests and diseases in targeted areas to ensure the uninterrupted supply of quality raw material for industry.

Goals of the Mission

The overarching goals of TMoC include:

- Establishing synergy among existing government schemes to foster vertical and horizontal integration.
- Ensuring timely and holistic attention to all aspects of the coconut value chain—production, post-harvest, and consumption.
- Maximizing economic, ecological, and social returns from prior investments in coconut development.
- Promoting value addition and diversification to generate skilled employment.
- Disseminating technologies using a participatory approach for effective adoption.

Mission Approach

The mission adopts a strategic and integrated approach, focusing on:

- Addressing gaps in existing schemes and converging institutional efforts to achieve comprehensive development.
- Supporting technology development and adoption in pest/disease management and product diversification.
- Enabling the demonstration and replication of successful interventions.

Structure of the Mission

TMoC follows a mission-mode approach that ensures convergence with existing schemes, fills technological and infrastructural gaps, and facilitates rapid adoption through training, demonstration, and financial support. Key focus areas include R&D, capacity building, infrastructure development, pest and disease control, post-harvest processing, value addition involving local communities, especially through Farmer Producer Organizations (FPOs).

The TMoC operates through the following components:

1. Development and adoption of pest and disease management technologies to rehabilitate affected gardens and ensure crop health.
2. Technology support for

processing and product diversification, including funding for pilot units and R&D.

3. Technical support, external evaluation, and provision for emergent requirements to ensure responsiveness and quality control in implementation.

Each component is supported by financial assistance with clearly defined cost norms. Public institutions conducting R&D or demonstrations in pest/disease control are eligible for 100% funding up to ₹50 lakh, while adoption of such technologies is subsidized at 25% of the project cost (₹0.40 lakh/ha).

For processing and product diversification, development and demonstration projects are funded up to ₹100 lakh to Public institutions . Adoption is incentivized through back-ended capital subsidies of 25% in general areas and 50% in high-cost areas, with a maximum cap of ₹300 lakh.

Eligibility for funding under TMoC varies depending on the nature of the project. Institutions like ICAR, SAUs, CSIR labs, and research bodies are eligible for development and demonstration work. Adoption of proven technologies is open to FPOs, co-operatives, NGOs, entrepreneurs, and individual farmers. Technical support for emergencies, such as pest outbreaks or natural disasters, is provided based on decisions made by the Project Approval Committee.

Coconut Products covered under the scheme are

Virgin Coconut Oil (VCO)

- Extracted from coconut milk using wet processing or traditional boiling methods.
- Used for cooking, hair care, and baby oil due to its purity and aroma.
- Has long shelf life due to low free fatty acid (FFA) content.

Desiccated Coconut

- Dehydrated grated coconut used in food and confectionery.
- High in oil and low moisture content.

Coconut Milk & Cream

- Emulsified liquid from fresh coconut gratings; used in various dishes.
- Coconut cream is a concentrated form of milk with high fat content

Spray-Dried Coconut Milk Powder

- Offers longer shelf life, easy transport, and reconstitution for cooking.

Coconut Skimmed Milk

- By-product of milk processing, rich in protein, useful for milk substitutes.

Coconut Chips

- Snack product made from 9-10 month-old coconuts.
- High in fat, fiber, and lauric acid.

Tender Coconut Water (TCW)

- Nutritious drink, low-calorie, rich in potassium and sugars.
- pH ~4.5, contains essential minerals.

Coconut Vinegar

- Fermented from coconut water/sap.
- Used in pickles and sauces; rich in minerals and vitamins.

Coconut Squash

- Concentrate drink made from coconut water, sugar, lemon, ginger.

- Shelf life of 3 months.

Nata-de-Coco

- Cellulose gel from fermented coconut water.
- Used in desserts and fruit salads.

Neera

- Sap from coconut flower, a nutritious health drink.
- Rich in amino acids, B-vitamins, minerals.

Coconut Jaggery

- Made by boiling Neera; used as a traditional sweetener.
- Contains calcium, phosphorus.

Coconut Palm Sugar

- Crystallized jaggery; low GI and nutrient-rich.
- Globally marketable alternative to regular sugar.

Coconut Flower Syrup

- Concentrated Neera; rich in minerals and potassium.
- Low –medium glycemic, diabetic-friendly.

Coconut Biscuits

- Made from flour and coconut powder.
- High fiber, low-calorie snack with 3-month shelf life.

Coconut Candy

- Made from grated coconut and milk.
- High fiber, helps in digestion.

Coconut Chocolate

- Mix of coconut, sugar, milk, butter, and chocolate coating.
- Protein and fiber-rich, often includes dry fruits.

Coconut Burfi

- Roasted coconut snack with added sugar and fat.
- Nutritive value: high in protein and carbs.

Coconut Shell Powder

- Pulverized shell used in various industries.
- Free-flowing, brown powder with low moisture and ash content.

Coconut Shell Charcoal

- Produced by controlled burning of shells.
- Used for activated carbon; valued for its high carbon content.

Activated Carbon

- Made by steam activation of charcoal.
- Used for purification and filtration due to high adsorption capacity.

In conclusion, the Technology Mission on Coconut represents a strategic and holistic effort to modernize and sustain India's coconut sector. It encourages innovation, builds institutional capacity, empowers farming communities, and ensures that value is added at every stage of the coconut value chain. Through well-defined guidelines, financial support, and participatory implementation, TMoC has the potential to transform coconut farming into a high-value, resilient, and sustainable industry. ■

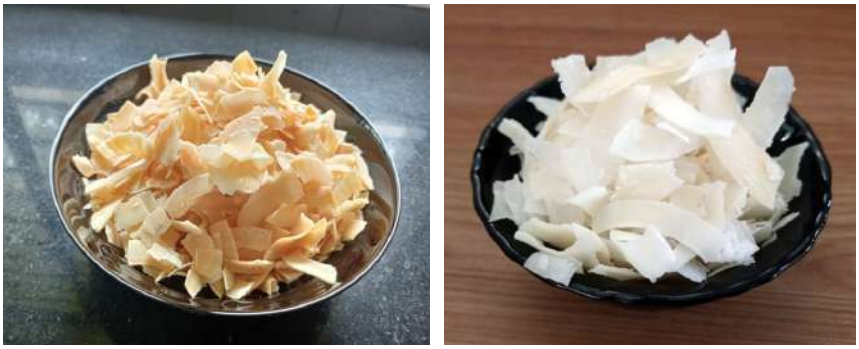
CDB Institute of Technology

Empowering Coconut Farmers & Entrepreneurs

DR. ANKUR KUMAR Quality Manager
ANEETA JOY Food Technologist, CDB Institute of Technology, Aluva

The CDB Institute of Technology (CIT), located at South Vazhakulam, Aluva, functions under the Coconut Development Board as a dedicated centre for the growth and promotion of India's coconut sector. It was established in 2002 as the Technology Demonstration Centre with the objective of serving as a platform to demonstrate coconut processing technologies to entrepreneurs and farmer groups. Over the years, its role has expanded to include the development and transfer of technologies for value-added coconut products, provision of quality testing services through its NABL-accredited Quality Testing Laboratory, and the organisation of short-term, hands-on training programmes in coconut processing and related value addition. The institute also offers technical consultancy and incubation services to support emerging entrepreneurs.

In 2003, CIT began conducting Technology Demonstration Training Programmes, and in 2006, it established its Quality Testing Laboratory, which later earned NABLaccreditation under ISO/IEC 17025 standards. Today, the laboratory plays a vital role in ensuring that coconut-based products meet stringent food safety and quality requirements.



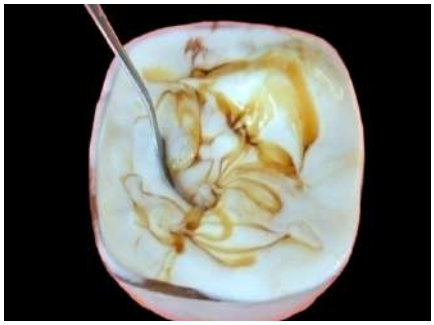
Coconut chips

Coconut Cluster

CIT offers a range of integrated services. It provides practical, hands-on training on coconut-based convenience foods and beverages, giving participants exposure to quality control practices and modern packaging systems while also imparting entrepreneurial and marketing guidance. It engages in the development of innovative coconut-based products, such as beverages, snacks, confectionery, and functional foods which includes Coconut chips, coconut cookies, flavoured coconut milk,

Coconut Wraps

Sweetened coconut flakes



Tender Coconut based frozen dessert

Coconut Milk Yogurt

Coconut Chunks

Coconut Haustorium Products

coconut milk yoghurt, coconut cluster etc and transfers these technologies to small and medium enterprises, self-help groups, and farmer producer organisations.

CITs NABL-accredited Quality Testing Laboratory is equipped to carry out both chemical and microbiological analysis, with the capacity to test various parameters across a wide variety of products, including coconut oil, virgin coconut oil, coconut milk powder, nata de coco, coconut chips, tender coconut water etc. The laboratory uses advanced sophisticated analytical instruments to ensure accuracy and reliability in testing.

The CIT also operates an Incubation Centre, which provides shared pilot-scale facilities for entrepreneurs to test and scale their products without the need for heavy initial investment. This centre offers guidance on product development, certification, branding, and market linkages, helping new enterprises take their products from concept to commercial launch.

The facilities at CIT include a 2,500 sq. ft. demonstration hall, a pilot plant capable of processing up to one hundred coconuts per batch for training and product trials, and fully equipped laboratory sections for chemical and microbiological testing. These resources make it a unique institution in the coconut sector, combining research, demonstration, quality control, and entrepreneurial support under one roof.

CIT can be contacted at its South Vazhakulam campus in Aluva, Kerala. The office operates from 9:00 a.m. to 5:30 p.m., and enquiries can be directed via phone at 0484-2679680 or by email at cit-aluva@coconutboard.gov.in ■

From Waste to Wonder

Nata Nutrico's Journey in Transforming Coconut Water into Global Innovations

SONA JOHN
Publicity Officer,
Coconut Development Board, Kochi – 11

At Kinfra Park, Nadukani, Taliparamba in Kannur district, a quiet revolution in coconut innovation is underway. Nata Nutrico Coconut Food Products LLP, India's first dedicated Nata de Coco manufacturing unit, has turned what was once considered waste—mature coconut water—into an array of high-value, health-focused, and eco-friendly products. Behind this inspiring venture is Mr. Abdulla M., a visionary entrepreneur born into a traditional coconut farming family, who saw opportunity where others saw loss.

For decades, vast quantities of coconut water drained from oil mills were discarded, contributing to environmental concerns and depriving farmers of additional income. In 2007, driven by the desire to find a sustainable solution, Abdulla attended a training programme at the Coconut Development Board's Institute of Technology. His first venture, producing coconut vinegar, failed to find a strong market. But rather than giving up, Abdulla turned his attention to Nata de Coco—a chewy, jelly-like delicacy made by fermenting coconut water.

The path was anything but easy. Nearly ten years of painstaking research, experimentation, and trials followed. By 2017, Abdulla had perfected a unique natural fermentation process, producing Nata de Coco using only natural mother culture—setting Nata Nutrico apart from competitors who rely on artificial cultures.

With strong technical and advisory support from the Coconut Development Board, Abdulla joined hands with Mr. Shimwas Hussain to establish a manufacturing unit in 2018. By 2019, Nata Nutrico Coconut Food Products LLP was formally registered, marking the dawn of a new chapter for India's coconut industry.

Notably, Nata Nutrico is a women-led enterprise, with key positions held by Mrs. Shameema A.P (wife of Abdulla), Mrs. Shafna (wife of Shimwas Hussain), Mrs. Sabira Habeeb, and Mrs. Zeenath. Women also make up the majority of its workforce, reflecting a deep commitment to women's empowerment.

Today, the company uses around 80,000 litres of

coconut water each month—sourced directly from farmers at ₹7 per litre—to produce nearly 35 tonnes of Nata de Coco. Its meticulous production process includes collecting mature coconut water, enriching it with sugar solution, and fermenting it for ten days. After formation, the Nata is thoroughly soaked, sterilised, sweetened, and packaged, ensuring premium quality. Around 25 tonnes are supplied in bulk to beverage manufacturers who incorporate it into flavoured drinks.

Nata Nutrico has since expanded into producing a diverse range of flavoured Nata drinks—Litchi, Green Apple, Mango, Orange, Strawberry, Kiwi, Blueberry—alongside natural pulp-based beverages like Grape, Pineapple, Jackfruit, and Tender Coconut. A notable addition is Nata Life, a dietary fibre-rich variant available with or without glucose.

The company's innovation extends far beyond beverages. Abdulla has pioneered methods to transform nata production waste into vegan leather - a 100% natural, biodegradable alternative to animal leather - used in bags, shoes, wallets, and handicrafts. This not only eliminates waste but also opens new revenue streams for farmers and artisans.

Sustainability and innovation also converge in Nata Nutrico's coconut bio-cellulose face masks. Originally developed by German scientists for burn care, these "second skin" masks offer 20 times more hydration than conventional masks, blending natural cellulose sheets with skin-nourishing serums containing Vitamin E, glycerin, niacinamide, and hyaluronic acid.

The creative scope continues to widen. From jewellery bases to gourmet coconut desserts, the R&D team actively seeks new applications for coconut water, ensuring nothing goes to waste.

Nata Nutrico's products have gained traction not only across major Indian cities—including New Delhi, Hyderabad, Mumbai, and Bengaluru—but also in international markets such as Qatar, UAE, Saudi Arabia, and Kuwait, with plans to enter Europe and North America. The company leverages e-commerce, supermarket tie-ups, and strong social media campaigns to boost awareness and sales.

From its initial ₹75 lakh investment to a ₹5 crore expansion in 2022, Nata Nutrico has scaled production to meet rising demand. The future roadmap includes introducing coconut-based dairy alternatives, expanding retail presence, and setting up larger manufacturing facilities.

At its core, Nata Nutrico is more than a business—it is a model of sustainable enterprise that bridges rural livelihoods, environmental stewardship, and health-conscious consumerism. Abdulla's journey from a farmer's son to an industry innovator stands as a powerful example of what vision, persistence, and the right support systems can achieve.

As global interest in natural, sustainable products grows, Nata Nutrico is well-positioned to lead India's coconut sector into a new era—where every drop of coconut water is valued, every farmer benefits, and every product tells a story of innovation, resilience, and respect for nature. ■

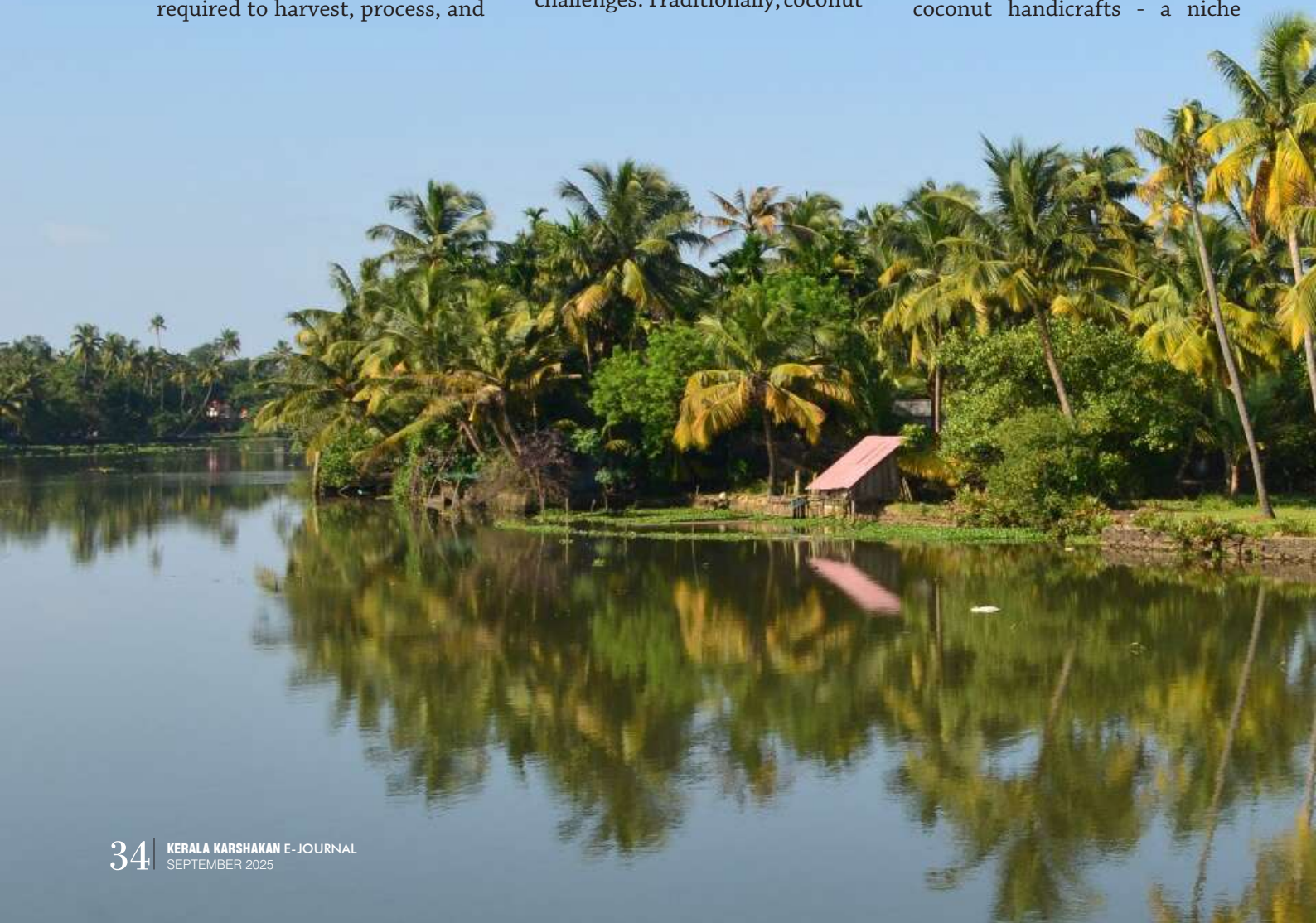
Green Skills, Golden Futures

CDB's revised schemes for Rural Livelihoods through Cocomitra and Kera Kaushal Kendra

T. BALA SUDHAHARI
Director, CDB, Kochi

The coconut palm, revered as Kalpavriksha or the divine "Tree of Heaven", despite its multifaceted utility, faces a paradox: while the demand for coconut and its by-products is increasing, the skilled workforce required to harvest, process, and innovate within the sector is steadily declining.

The shortage of coconut climbers and the underutilization of coconut shell and wood for value addition have been persistent challenges. Traditionally, coconut harvesting was carried out by skilled climbers using indigenous methods. Over the years, however, this occupation has lost appeal among rural youth due to physical risks, lack of recognition, and low income. Simultaneously, coconut handicrafts - a niche



but promising sector - remained largely informal and lacked structured training, market access, and organized production units.

Recognizing the urgent need to create a skilled, self-reliant, and sustainable coconut economy, the Coconut Development Board (CDB) under the Ministry of Agriculture and Farmers Welfare has revised its approach to skill development. Building upon earlier initiatives like the Friends of Coconut Tree (FoCT) training and the Coconut Handicraft Training Programme, the Board has now launched two ambitious schemes: Cocomitra - Coconut Climbers Task Force and Kera Kaushal Kendra - Establishment of Coconut Handicraft Centres.

These revamped programmes aim to address the dual goals of skill empowerment and livelihood creation, offering structured training, infrastructure support, and long-term guidance to youth and artisans in the coconut sector.

Cocomitra: Transforming Coconut Climbing into a Profession

Coconut harvesting is no longer just a traditional task passed down from one generation to another. With the introduction of Cocomitra,Coconut development Board is planning to transform it to a modern, service-oriented profession with dignity, safety, and income stability.

The Cocomitra initiative seeks to develop trained task forces of coconut climbers who can offer reliable, scientific, and hygienic harvesting and plant protection services to coconut farmers. These task forces are not just trained workers, but professional service providers, organized into registered units with their own office infrastructure, branding, tools, and operating protocols.

A Cocomitra unit consists of a minimum of ten trained coconut

Training under Cocomitra is conducted in collaboration with Krishi Vigyan Kendras (KVKs) and other related institutions.

climbers who come together to form a registered entity. The unit could be a proprietorship, partnership, cooperative, society etc. Each member must be a trainee of CDB's training programme and must be enrolled under the Kera suraksha Insurance Scheme for personal accident coverage.

Training under Cocomitra is conducted in collaboration with Krishi Vigyan Kendras (KVKs) and other related institutions. The course spans over three days and includes comprehensive instruction in safe climbing using mechanical devices, scientific harvesting of both tender and matured coconuts, nursery management, crown cleaning, plant protection operations, and first-aid. Beyond field skills, trainees are also taught customer communication and basic business principles. Each training batch accommodates up to thirty-five participants and is funded by the Board.

Once trained, the group must establish a physical base of operations - an office space that is either owned or leased for a minimum of five years. They open a dedicated bank account in the name of the unit and install clear signage displaying their identity and CDB's affiliation. Two members are nominated as official representatives, and a rotation policy is put in place to ensure fairness in work allocation.

To make the units fully functional from the outset, the Board provides a package of support through empanelled dealers. This includes electric two-wheelers for mobility, climbing machines, safety kits, uniforms, and first-aid boxes. A seed fund of ₹10,000 is also provided to meet initial operating expenses. These assets are officially registered in the name of the unit and must be insured.

Importantly, the units are encouraged to function like micro-enterprises. Climbers contribute a small percentage of

their income to a common fund, which is used for administrative expenses such as rent, electricity, and phone bills. Service rates for harvesting are standardized based on palm height and terrain and must be displayed transparently. Quarterly reports on service delivery and performance are submitted to the Board, and periodic inspections ensure compliance with quality and safety norms.

Through this structured and professional approach, Cocomitra offers a life-changing opportunity to rural youth. It not only solves the critical shortage of coconut climbers but also restores dignity to an essential but neglected rural occupation. For coconut farmers, it ensures timely, hygienic, and affordable services — a win-win for the entire sector.

Kera Kaushal Kendra: Crafting Livelihoods through Coconut Artistry

While Cocomitra focuses on the farm level, the Kera Kaushal Kendra initiative takes skill development into the realm of creativity, craftsmanship, and value addition. This programme seeks to nurture a network of Coconut Handicraft Centres across India that specialize in products made from coconut shell and wood.

Coconut shell crafts - such as bowls, cutlery, jewelry, and décor items - are fast gaining popularity due to their eco-friendly appeal and aesthetic value. Yet, despite the cultural and environmental relevance of these crafts, most artisans remain unorganized, with limited training, market access, or formal identity.

Kera Kaushal Kendra is designed to change that. It mobilizes interested artisans and unemployed youth into registered entities such as NGOs, cooperatives, trusts, or societies. These groups undergo training and are then supported to set up common facility centres with equipment, workspace, and marketing linkages.

The journey begins with a six-day training programme in coconut handicraft making. Participants learn carving, polishing, product design, finishing techniques, tool handling, packaging, and pricing strategies. The training is delivered by skilled artisans and empanelled institutions and is designed to blend traditional craftsmanship with contemporary aesthetics. Each batch trains fifteen individuals and is funded by the Board.

Upon completion of training, groups of thirty artisans come

together to form a legal entity and establish a workshop. They are required to open a bank account in the group's name and sign a lease agreement for a physical production space. The entity must then submit a detailed proposal to the Board for recognition as a Kera Kaushal Kendra.

Financial assistance is extended for tools, equipment, furniture, and contingency expenses. Items such as carving kits, polishing machines, and display units are procured directly by the Board to ensure standardization and efficiency.

Once operational, the Centres function as production hubs and training-cum-marketing units. They maintain records of their production, inventory, and sales. A small display section within the centre showcases their creations. Quarterly reports are submitted to the Board, and field officers conduct inspections to ensure that quality standards and community benefits are maintained.

Marketing support is a key element of the scheme. CDB facilitates the participation of these Centres in regional and national exhibitions, helps them explore e-commerce platforms, and supports branding, packaging, and design innovation. By connecting traditional skills with modern markets, Kera Kaushal Kendra is helping rural artisans move up the value chain and build sustainable livelihoods.

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Reviving Rural Economies, One Skill at a Time

The launch of Cocomitra and Kera Kaushal Kendra marks a significant milestone in CDB's mission to make the coconut sector more inclusive, innovative, and income-generating. These programmes embody a shift from ad-hoc training interventions to long-term livelihood models. They empower the rural workforce not just with skills, but with identity, infrastructure, and opportunity.

Cocomitra restores pride and viability to the vocation of coconut climbing, making it safer, more professional, and more rewarding. Kera Kaushal Kendra, on the other hand, unlocks the creative potential of coconut shell and wood by turning local artisans into micro-entrepreneurs with national reach.

Together, they create a model of green livelihood development rooted in tradition yet aligned with contemporary aspirations. These initiatives also contribute to larger national goals like Skill India, Startup India, and Atmanirbhar Bharat, while addressing rural unemployment, skill gaps, and migration pressures.

With every new Cocomitra unit or Kera Kaushal Centre, the coconut sector moves closer to a future where no palm is left unharvested for lack of climbers, and no shell goes to waste for lack of artisans. More importantly, these initiatives give rural youth and artisans something invaluable — the confidence to shape their own futures with the tools of skill, dignity, and purpose. ■

Milk
The Nutritional Legacy

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Man started taming mammals for food and work from time immemorial and have become an important source of nutrients in the diet. Cattle are domesticated bovines of the family bovidae. They are widely used for the production of meat, milk and milk products. Apart from cattle, the other important dairying species are buffalo, goats, sheep, camel, yak, reindeer, horse, and donkey. Recently, many plant-based milk alternatives (PBMAs) like oat, cashew, pea, almond and coconut milk became prominent due to their diverse nutrition and health impact. Though their sales are increasing in the world milk market, cow milk production significantly surpasses PBMAs in volume and revenue .(FAO, 2013)

Bovine milk

Bovine milk is the secretion of mammals produced to meet the complete nutritional requirements of their neonates. It is defined as the clean, fresh

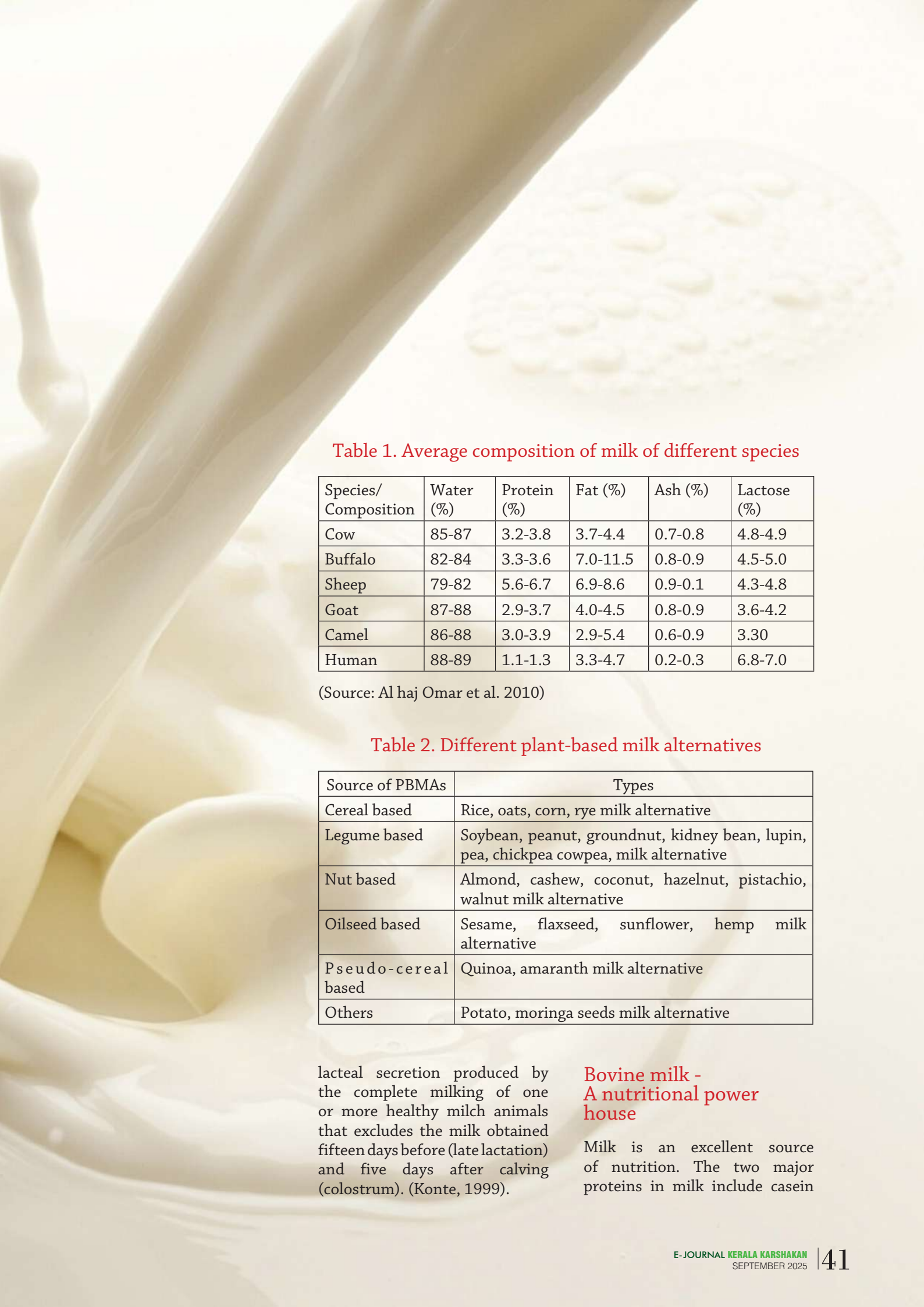

Table 1. Average composition of milk of different species

Species/ Composition	Water (%)	Protein (%)	Fat (%)	Ash (%)	Lactose (%)
Cow	85-87	3.2-3.8	3.7-4.4	0.7-0.8	4.8-4.9
Buffalo	82-84	3.3-3.6	7.0-11.5	0.8-0.9	4.5-5.0
Sheep	79-82	5.6-6.7	6.9-8.6	0.9-0.1	4.3-4.8
Goat	87-88	2.9-3.7	4.0-4.5	0.8-0.9	3.6-4.2
Camel	86-88	3.0-3.9	2.9-5.4	0.6-0.9	3.30
Human	88-89	1.1-1.3	3.3-4.7	0.2-0.3	6.8-7.0

(Source: Al haj Omar et al. 2010)

Table 2. Different plant-based milk alternatives

Source of PBMAs	Types
Cereal based	Rice, oats, corn, rye milk alternative
Legume based	Soybean, peanut, groundnut, kidney bean, lupin, pea, chickpea cowpea, milk alternative
Nut based	Almond, cashew, coconut, hazelnut, pistachio, walnut milk alternative
Oilseed based	Sesame, flaxseed, sunflower, hemp milk alternative
Pseudo-cereal based	Quinoa, amaranth milk alternative
Others	Potato, moringa seeds milk alternative

lacteal secretion produced by the complete milking of one or more healthy milch animals that excludes the milk obtained fifteen days before (late lactation) and five days after calving (colostrum). (Konte, 1999).

Bovine milk - A nutritional power house

Milk is an excellent source of nutrition. The two major proteins in milk include casein

Milk is an excellent source of nutrition. The two major proteins in milk include casein and whey proteins.

and whey proteins. Casein makes up about 80% of the total protein. It provides the body with all the essential amino acids, ideal for maintaining muscle protein synthesis over time. On the other hand, whey protein is rapidly absorbed and is especially rich in branched-chain amino acids like leucine, which plays a key role in muscle repair and metabolic regulation. (Berrazaga et al., 2019). Milk is also a natural source of minerals especially calcium, potassium and magnesium that are vital for strong bones, muscle development and overall growth (Weaver & Plawecki, 1994). These minerals are highly bioavailable and is efficiently absorbed by the body. Essential vitamins like A, D, E, K, thiamine, niacin, biotin, riboflavin, folates and pantothenic acid are also found in milk. Healthy unsaturated fats help the body stay fit. Lactose is the unique sugar in milk. It is a disaccharide of glucose and galactose. It helps in the absorption of minerals like calcium, apart from providing its basic nutrition. Natural inhibitory substances like immunoglobulins, lactoferrin, lysozyme and conjugated linoleic acid in cow's milk support immunity, improve metabolism and promote muscle recovery. Thus, milk is a complete food that offers a complete nutritional profile in every glass for children, pregnant women and the elderly (Scholz-Ahrens et al., 2020).

Plant-based milk alternatives (PBMAs)

Plant-based alternatives are water-soluble extracts of legumes, cereals, oilseeds, pseudocereals, vegetables, and nuts. They gained popularity recently, as the mammalian milk is not easily digested and absorbed by all due to lactose intolerance (inability to digest lactose in the food due to the absence of lactase enzyme in the body), milk allergies and vegan lifestyles.

PBMAs- Nutritional and processing facts

PBMAs do not match the natural nutrient profile or biological value of cow's milk. The most important ingredients used apart from plant sources are water, emulsifiers and additives that are selected to form a final product of the desired functional attributes. Pretreatments like dehulling, soaking, blanching and fermentation is required depending on the type of plant source. These treatments inactivate the inhibitory substances, improve yield and remove off-flavours. An alkaline medium is required during the extraction step to improve protein extractability. It is followed by a neutralization step. The coarse particles are finally removed from the slurry by filtration, decantation or centrifugation. Other ingredients like minerals, vitamins, flavourings, sweeteners, salt and stabilizers are fortified as required. The fortificants should be stable and bioavailable. Pasteurization or ultrahigh temperature treatment is given to inactivate enzymes, reduce the microbial load and to extend the shelf life.

Cow milk Vs PBMAs

Today, milk is available in many forms from traditional dairy milk to popular plant-based options like almond, soy, oat, coconut, and rice milk. People choose different types for various reasons, such as lactose intolerance, allergies, following a vegan diet or just personal preference. But when it comes to nutrition and health benefits, how each type supports the body, need to be analyzed which is not the same.

i) Nutritional differences

In the natural, unfortified form, PBMAs lack key nutrients such as calcium, vitamin D, vitamin B12 and iodine (Allen, 2008; Scholz-Ahrens et al., 2020). Soymilk, among other PBMAs, has a higher level of protein (up to 8.71 g/100 mL) than cow milk (3.28 g/100 mL), but does not contain all the essential amino acids. Most PBMAs are fortified with different nutrients, such as calcium, phosphorus, and vitamins E and D. Soybean, peanut, hemp, and almond milk alternatives are high in essential fatty acids especially linoleic and oleic acids. Almond milk alternative is a good source of calcium and vitamin E. Recent studies have established the vital role of some PBMAs in improving immune system, antimicrobial effects and physiological functions in the body. The nutritional balance of cow milk on the other hand makes it a high nutritional value product, which is a good source of protein, calcium, phosphorus, potassium, and vitamin D. Cow milk protein content has all essential amino acids like isoleucine, leucine, threonine, lysine, methionine, cysteine, phenylalanine, tyrosine, and valine than that occurs in PBMAs .(USDA, 2020)

ii) Sensory differences

PBMAs are commonly light brownish, greenish or greyish in colour and possess displeasing flavour characteristics. They have beany and earthy smell, which is related to the plant lipid oxidation. Also, PBMAs are associated with bitter, acid or astringent flavors due to phenols, terpenes and flavonoids. The soluble fibres present in plant can influence the texture of PBMAs and can sometimes give a chalky and sandy texture. Alternatively, cow milk has characteristic mild flavor and is optically opaque creamy-white in appearance. PBMAs have similar pH values and redox potential as that of cow milk.

iii) Presence of antinutritional factors and allergens

Antinutrients are compounds which interfere with nutrient absorption, thereby reducing nutrient intake to produce adverse effects. They are found in higher concentrations in uncooked seeds such as cereals,

legumes and nuts. The most common antinutrients in plant-based foods are phytic acids, saponins, tannins, trypsin inhibitors, protease inhibitors, lectins and oxalates. Trypsin inhibitors are found in foods such as chickpeas, soybeans and red beans. Trypsin inhibitors reduce protein absorption, thereby affecting the human nutrition. Phytates are heat stable, since they do not degrade during cooking, and could cause low mineral bioavailability, solubility, and functionality, as well as protein and carbohydrate digestibility. Calcium oxalate can accumulate as kidney stones, thereby affecting renal health. Most of the PBMAs are also sources of many food allergens like α-amylase trypsin inhibitor, legumins, vicilins and PR-10 proteins that present quaternary structures.

iv) Environmental impact

Plant-based milks usually produce fewer greenhouse gas emissions than dairy, but they are not without impact. For example, almond milk requires large amounts of water for cultivation, while coconut farming may lead to deforestation in tropical regions. On the other hand, well-managed dairy farms can contribute to soil health, use food by-products as feed, and support circular farming systems (Moughan, 2021).

Conclusion

The consumption of PBMAs has increased exponentially in recent years. Even though both milks look similar in stores, they do not offer the same

benefits. Most of the plant milk have lower amounts of protein and key nutrients unless they are fortified. Bovine milk on the other hand is more than just a traditional drink. It is a natural and powerful source of nutrition, that the body can absorb easily and possess special compounds that help build strong bones, muscles and a healthy immune system. Bovine milk offers all these benefits without needing extra additives or heavy processing (Berrazaga et al., 2019). Hence, for real and natural nourishment, cow's milk remains the better choice.

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SEPTEMBER 2025
VOLUME 13 ISSUE 04

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Published by Sindhu K S, Principal Information Officer, Farm Information Bureau Owned by Department of Agriculture, Government of Kerala and Published at Farm Information Bureau, Kowdiar P.O, Thiruvananthapuram-3. Editor: Anita C S
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